



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/817,695	03/26/2001	Bertram J. White	TI-31770	9349
23494	7590	01/29/2004	EXAMINER	
TEXAS INSTRUMENTS INCORPORATED			SMITH, TYRONE W	
P O BOX 655474, M/S 3999			ART UNIT	
DALLAS, TX 75265			PAPER NUMBER	

2837

DATE MAILED: 01/29/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/817,695

Applicant(s)

WHITE ET AL.

Examiner

Tyrone W Smith

Art Unit

2837

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 12 November 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-5 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-5 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. §§ 119 and 120

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 13) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.
- a) ☐ The translation of the foreign language provisional application has been received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Claim Objections

1. Claim 1 objected to because of the following informalities: Where it states, "the control circuit receiving a reduced flyback voltage being reduced from said flyback voltage from said motor during said high voltage state." Appropriate correction is required.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 1-5 rejected under 35 U.S.C. 103(a) as being unpatentable over Menegoli (5504402) in view Menegoli et al (6498446).

Regarding Claims 1-5. Menegoli [402] discloses a control circuit (Figure 1 item 30 and Figure 2) for controlling a spindle motor. Initially the motor braking the switching is turned off for low voltage state (Refer to Figure 2 items 128 and 130; column 5 lines 9-25 and 56-65). However, Menegoli [402] does not disclose the control circuit receiving a reduced or not reduced flyback voltage from the motor during a pulse voltage state and/or high voltage state.

Menegoli [446] discloses a system for optimizing a disk drive motor, which includes a motor (Figure 2 item 16), BEMF detection (Figure 2 item 32) and divider or op amp (Figure 2 item 34; column 5 lines 31-37) that divides or reduces the BEMF. Further, using a pulse shift modulation (pulse voltage state) which converts the signal or voltage (Figure 2 item 27) to send

pulse drive signals to the motor and therefore using the BEMF detection during a pulse voltage state and after the divider or op amp receives BEMF from the BEMF detector which can be in a regular signal or high voltage state of the motor. Menegoli in column 4 lines 56-65 indicate that other drive techniques besides pulse shift modulation can be used in controlling the motor such as pulse voltage and/or high voltage state. Refer to column 4 lines 32-65 and column 5 lines 5-57.

It would have been obvious to one of ordinary skill in the art at the time of invention to use Menegoli's [402] a control circuit for controlling a spindle motor and Menegoli's [446] a system for optimizing a disk drive motor. The advantage of combining the two would provide a system that provides a drive signal to the motor such that the current provided to each winding is substantially in phase with the BEMF signal corresponding to the winding. This results in the motor having a more optimal torque.

Response to Arguments/Amendment

4. Applicant's arguments with respect to claims 1-5 have been considered but are moot in view of the new ground(s) of rejection.

Examiner requests that the Applicant expound on the low, high and pulse voltage state in the claims and braking in a low state. Further, the control circuit receiving a reduced flyback voltage from the motor in a pulse or high state, this also should be expanded on in the claims. The Applicant should contact the Examiner to discuss the present case for apt prosecution.

Conclusion

5. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. The prior art(s) of record pertaining to disk drive/spindle motors or similar is disclosed in the PTO-892.

6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tyrone W Smith whose telephone number is 703-306-5987. The examiner can normally be reached on weekdays from 8:30am to 5:00pm.


As of February 4, 2004, Examiner's new telephone number is 571-272-2075

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Robert Nappi, can be reached on 703-308-3370. The fax phone number for the organization where this application or proceeding is assigned is 703-308-3431.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-1782.

Tyrone Smith
Patent Examiner

Art Unit 2837


TINA DUDA
PRIMARY EXAMINER